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174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

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Job No.: CECTC-BBMP-KRIDL-W.No.14-2015-16 17.04.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager (West),** KRIDL, PIU, Bangalore.
NAME OF THE WORK	:	Improvements to Bagalagunte Main Road (from Maramma Temple to MEI Main Road) connecting MEI Layout Main Road & Cross Roads in Ward No. 14, BBMP, Bangalore.
REFERENCE	:	EE/DD/WO/372/2014-15 Dated: 31.03.2015
SAMPLE ID	:	Bituminous Macadam
DATE OF TESTING	:	17.04.2015

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	94	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	44	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	280	Min. 220

Note:

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⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

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ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬಾಗಲಗುಂಟೆ, ಬಿಬಿಎಂಪಿ
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Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16 17.04.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, PIU, Bangalore.
Name of the Work	Improvements to Bagalagunte Main Road (from Maramma Temple to MEI Main Road) connecting MEI Layout Main Road & Cross Roads in Ward No. [illegible]
Reference	EE/DD/WO/372/2014-15 Dated: 31.03.2015
Source / Location	Hotmix Plant, Bangalore
Type of Mix	Bituminous Macadam
Date of Testing	17.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	302	
4	Aggregate Impact value = percent fines	21.73	22.34	
	100* (W_2/W_1)%			**22.03**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

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Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16 18.04.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, PIU, Bangalore.
Name of the Work	Improvements to Bagalagunte Main Road (from Maramma Temple to MEI Main Road) connecting MEI Layout Main Road & Cross Roads in Ward No. 14, BBMP, Bangalore.
Reference	EE/DD/WO/372/2014-15 Dated: 31.03.2015
Source / Location	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	18.04.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 2	
1	Weight of aggregate suspended in water with the basket	W_1 g	2012	2015	2017	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1262	1265	1267	
4	Weight of saturated surface dry aggregate in air	W_3 g	2026	2024	2023	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	764	759	756	
6	Weight of oven dried aggregate	W_4 g	2014	2013	2011	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.636	2.652	2.660	2.648
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.678	2.691	2.703	2.691
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.60%	0.55%	0.60%	0.60%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

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Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16 18.04.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, PIU, Bangalore.
Name of the work	Improvements to Bagalagunte Main Road (from Maramma Temple to MEI Main Road) connecting MEI Layout Main Road & Cross Roads in Ward No. 14, BBMP, Bangalore.
Reference	EE/DD/WO/372/2014-15 Dated: 31.03.2015
Type of Mix	Bituminous Macadam
Date of Testing	18.04.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	2.8	2.93	97.07
2	2.9		
3	3.1		

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

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Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16 17.04.2015

Aggregate Gradation Test
IS : 2386 Part I

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, PIU, Bangalore.
Name of the work	Improvements to Bagalagunte Main Road (from Maramma Temple to MEI Main Road) connecting MEI Layout Main Road & Cross Roads in Ward No. 14, BBMP, Bangalore.
Reference	EE/DD/WO/372/2014-15 Dated: 31.03.2015
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	17.04.2015

Total Weight of Sample: 5325 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	389	7.31	7.31	92.69	90-100	
13.2	1665	31.27	38.57	61.43	56-88	
4.75	1642	30.84	69.41	30.59	16-36	
2.36	1036	19.46	88.86	11.14	4-19	
0.3	246	4.62	93.48	6.52	2-10	
0.075	123	2.31	95.79	4.21	0-8	

Total Weight of Sample: 5475 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	435	7.95	7.95	92.05	90-100	
13.2	1563	28.55	36.49	63.51	56-88	
4.75	1852	33.83	70.32	29.68	16-36	
2.36	981	17.92	88.24	11.76	4-19	
0.3	263	4.80	93.04	6.96	2-10	
0.075	92	1.68	94.72	5.28	0-8	

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